Imagine COMMUNICATIONS™

Installation and Operation Manual

Selenio 6800™ AVS6800+

Audio/Video Synchronizers

Edition C

175-000143-00

Delivering the Moment

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AVS6800+

Audio/Video Synchronizers

Installation and Operation Manual

Edition C
September 2007

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Preface

Manual Information

Purpose

This manual details the features, installation, operation, maintenance, and specifications for the AVS6800**+** Audio/Video Synchronizer.

Audience

This manual is written for engineers, technicians, and operators responsible for installation, setup, maintenance, and/or operation of the AVS6800**+** Audio/Video Synchronizer.

Revision History

Table P-1. Revision History of Manual

Edition	Date	Comments
A	June 2003	Initial release
B	March 2007	Format updates, parameter additions, cross-functional parameter changes
C	September 2007	Minor updates to content

Writing Conventions

To enhance your understanding, the authors of this manual have adhered to the following text conventions:

Table P-2. Writing Conventions

Term or Convention	Description
Bold	Indicates dialog boxes, property sheets, fields, buttons, check boxes, list boxes, combo boxes, menus, submenus, windows, lists, and selection names
Italics	Indicates E-mail addresses, the names of books or publications, and the first instances of new terms and specialized words that need emphasis
CAPS	Indicates a specific key on the keyboard, such as ENTER, TAB, CTRL, ALT, or DELETE
Code	Indicates variables or command-line entries, such as a DOS entry or something you type into a field
>	Indicates the direction of navigation through a hierarchy of menus and windows
hyperlink	Indicates a jump to another location within the electronic document or elsewhere
Internet address	Indicates a jump to a Web site or URL
Note	Indicates important information that helps to avoid and troubleshoot problems

Obtaining Documents

Product support documents can be viewed or downloaded from our website. Alternatively, contact your Customer Service representative to request a document.

Unpacking/Shipping Information

Unpacking a Product

This product was carefully inspected, tested, and calibrated before shipment to ensure years of stable and trouble-free service.

1. Check equipment for any visible damage that may have occurred during transit.
2. Confirm that you have received all items listed on the packing list.
3. Contact your dealer if any item on the packing list is missing.
4. Contact the carrier if any item is damaged.
5. Remove all packaging material from the product and its associated components before you install the unit.

Keep at least one set of original packaging, in the event that you need to return a product for servicing.

Product Servicing

Except for firmware upgrades, AVS6800**+** modules are not designed for field servicing. All hardware upgrades, modifications, or repairs require you to return the modules to the Customer Service center.

Returning a Product

In the unlikely event that your product fails to operate properly, please contact Customer Service to obtain a Return Authorization (RA) number, then send the unit back for servicing.

Keep at least one set of original packaging in the event that a product needs to be returned for service. If the original package is not available, you can supply your own packaging as long as it meets the following criteria:

- The packaging must be able to withstand the product's weight.
- The product must be held rigid within the packaging.
- There must be at least 2 in. (5 cm) of space between the product and the container.
- The corners of the product must be protected.

Ship products back to us for servicing prepaid and, if possible, in the original packaging material. If the product is still within the warranty period, we will return the product prepaid after servicing.

Restriction on Hazardous Substances (RoHS) Compliance

Directive 2002/95/EC—commonly known as the European Union (EU) Restriction on Hazardous Substances (RoHS)—sets limits on the use of certain substances found in electrical and electronic equipment. The intent of this legislation is to reduce the amount of hazardous chemicals that may leach out of landfill sites or otherwise contaminate the environment during end-of-life recycling. The Directive, which took effect on July 1, 2006, refers to the following hazardous substances:

- Lead (Pb)
- Mercury (Hg)
- Cadmium (Cd)
- Hexavalent Chromium (Cr-V1)
- Polybrominated Biphenyls (PBB)
- Polybrominated Diphenyl Ethers (PBDE)

According to this EU Directive, all products sold in the European Union will be fully RoHS-compliant and "lead-free." (See our website for more information on dates and deadlines for compliance.) Spare parts supplied for the repair and upgrade of equipment sold before July 1, 2006 are exempt from the legislation. Equipment that complies with the EU directive will be marked with a RoHS-compliant emblem, as shown in Figure P-1.

Figure P-1. RoHS Compliance Emblem

Waste from Electrical and Electronic Equipment (WEEE) Compliance

The European Union (EU) Directive 2002/96/EC on Waste from Electrical and Electronic Equipment (WEEE) deals with the collection, treatment, recovery, and recycling of electrical and electronic waste products. The objective of the WEEE Directive is to assign the responsibility for the disposal of associated hazardous waste to either the producers or users of these products. As of August 13, 2005, the producers or users of these products were required to recycle electrical and electronic equipment at end of its useful life, and may not dispose of the equipment in landfills or by using other unapproved methods. (Some EU member states may have different deadlines.)

In accordance with this EU Directive, companies selling electric or electronic devices in the EU will affix labels indicating that such products must be properly recycled. (See our website for more information on dates and deadlines for compliance.) Contact your local sales representative for information on returning these products for recycling. Equipment that complies with the EU directive will be marked with a WEEE-compliant emblem, as shown in Figure P-2.

Figure P-2. WEEE Compliance Emblem

Safety

Carefully review all safety precautions to avoid injury and prevent damage to this product or any products connected to it. If this product is rack-mountable, it should be mounted in an appropriate rack using the rack-mounting positions and rear support guides provided. It is recommended that each frame be connected to a separate electrical circuit for protection against circuit overloading. If this product relies on forced air cooling, it is recommended that all obstructions to the air flow be removed prior to mounting the frame in the rack.

If this product has a provision for external earth grounding, it is recommended that the frame be grounded to earth via the protective earth ground on the rear panel.

IMPORTANT! Only qualified personnel should perform service procedures.

Safety Terms and Symbols in this Manual

WARNING

Statements identifying conditions or practices that may result in personal injury or loss of life. High voltage is present.

CAUTION

Statements identifying conditions or practices that can result in damage to the equipment or other property.

Chapter 1

Introduction

Overview

The AVS6800+B2 and AVS6800+C2 are 6800+ product modules that synchronize AES audio signals with associated video signals. They can be used in combination with other 6800+ product modules to provide added video and audio capabilities such as audio tracking delay and hot-switching. The AVS6800+ modules provide one video serial digital input, two AES digital audio inputs and outputs, two SDI outputs, as well as Genlock (internal or external) and DARS reference inputs.

The following topics are described in this chapter:

- "Product Description" on page 2
- "Module Descriptions" on page 4
- "Signal Flow" on page 8

Product Description

The AVS6800+B2 and AVS6800+C2 audio/video synchronizers are processing modules with the capability to synchronize video and two AES audio channels with genlock and DARS reference signals. Both modules provide AES audio paths in both balanced (AVS6800+B2) and unbalanced (AVS6800+C2) forms. AES input and output ports provide full 24-bit capability, as well as compressed (Diamond™, DOLBY-E™) pass-through capability. One SDI input with two outputs are provided.

You can set up, control, and monitor AVS6800+ modules either locally via card-edge switches or remotely on a PC. For remote control, you can use either a serial RS-232 or optional ICE6800+ Ethernet connection.

Note

This module is not compatible with the 6800/7000 series frame.

Two AVS6800+ module types are available:

- The AVS6800+B2 has two balanced audio channels, along with a user-selectable balanced or unbalanced DARS input
- The AVS6800+C2 has two unbalanced audio channels, along with an unbalanced DARS input

Other AVS6800+ features include the following:

- 10-bit processing
- Input signals:
  - Serial digital SMPTE 259M
  - Genlock
  - Two AES streams (unbalanced or balanced)
  - Unbalanced DARS (balanced input available on the balanced option)
- Output signals:
  - Two synchronized serial digital SMPTE 259M
  - Two AES streams (unbalanced or balanced)
  - Reference signal for additional tracking audio module
- 525/625 input standard operation (auto-detected or user-selected)

- EDH reinsertion
- Genlock reference signal
- Video delay mode
- Audio re-sampling for 32 to 108 kHz AES outputs, with bypass for data over AES operation
- Audio synchronizer/delay capability
- Audio gain and mute control
- C-, U-, and V-bit transparency

Module Descriptions

Front Module

Figure 1-1 is a generic top-front view of a typical 6800**+** module and shows the general location of standard LEDs, controls, and jumpers. The number of Control and Monitoring LEDs on 6800**+** modules varies.

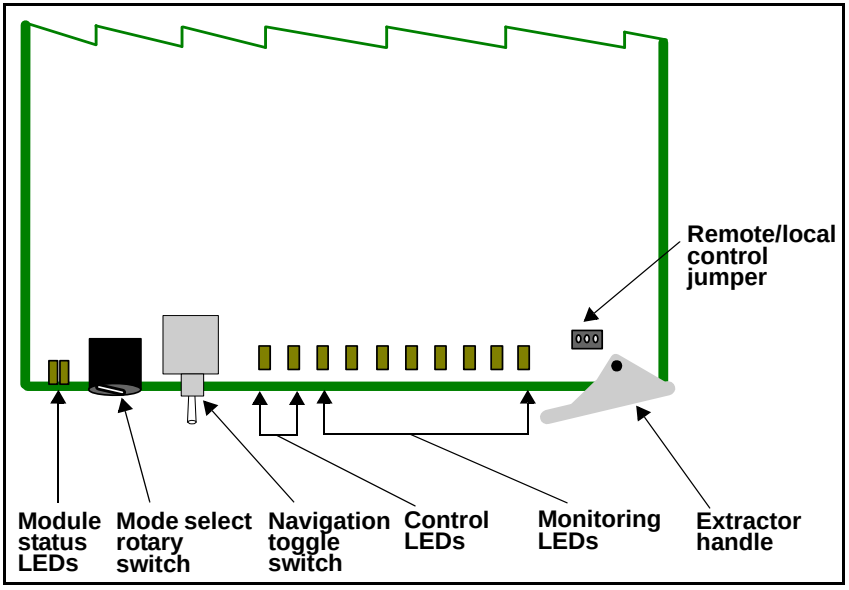

Figure 1-1. Typical 6800**+** Module

Table 1-1 on page 5 briefly describes generic 6800**+** LEDs, switches, and jumpers. See "Chapter 3: Operation" for more information on specific AVS6800**+** module controls, LEDs, and jumpers.

Table 1-1. Generic 6800+ Module Features

Feature	Description
Module status LEDs	Various color and lighting combinations of these LEDs indicate the module state. See "Monitoring LEDs" on page 43 for more information.
Mode select rotary switch	This switch selects between various control and feedback parameters.
Navigation toggle switch	This switch navigates up and down through the available control parameters: • **Down**: Moves down through the parameters • **Up**: Moves up through the parameters
Control LEDs	Various lighting combinations of these Control LEDs (sometimes referred to as "Bank Select LEDs") indicate the currently selected bank. See Table 3-1 "Selected Bank as Indicated by Control LEDs" for more information.
Monitoring LEDs	Each 6800+ module has a number of LEDs assigned to indicate varying states/functions. See "Monitoring LEDs" on page 43 for a description of these LEDs.
Local/remote control jumper	• **Local**: Locks out external control panels and allows card-edge control only; limits the functionality of remote software applications to monitoring • **Remote**: Allows remote or local (card-edge) configuration, operation, and monitoring of the AVS6800+

Back Connectors

AVS6800+B2DR Back Connector

Figure 1-2 shows the AVS6800+B2DR double-slot back connector for an FR6802+ frame.

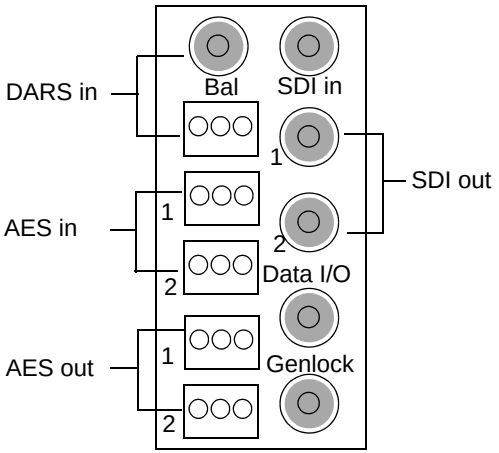

Figure 1-2. AVS6800+B2DR Back Connector

AVS6800+C2DR Back Connector

Figure 1-2 shows the AVS6800**+**C2DR double-slot back connector for an FR6802**+** frame.

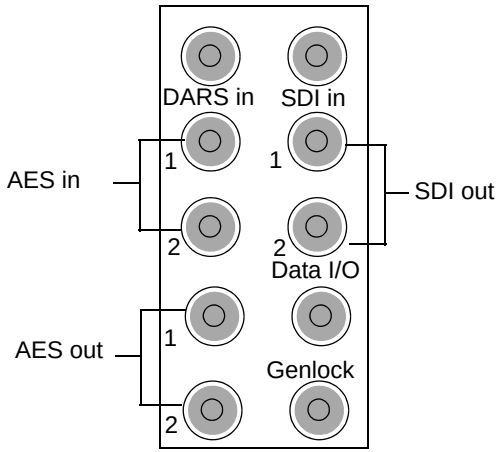

Figure 1-3. AVS6800**+**C2DR Back Connector

Signal Flow

Figure 1-4 shows the basic signal flow of the AVS6800+:

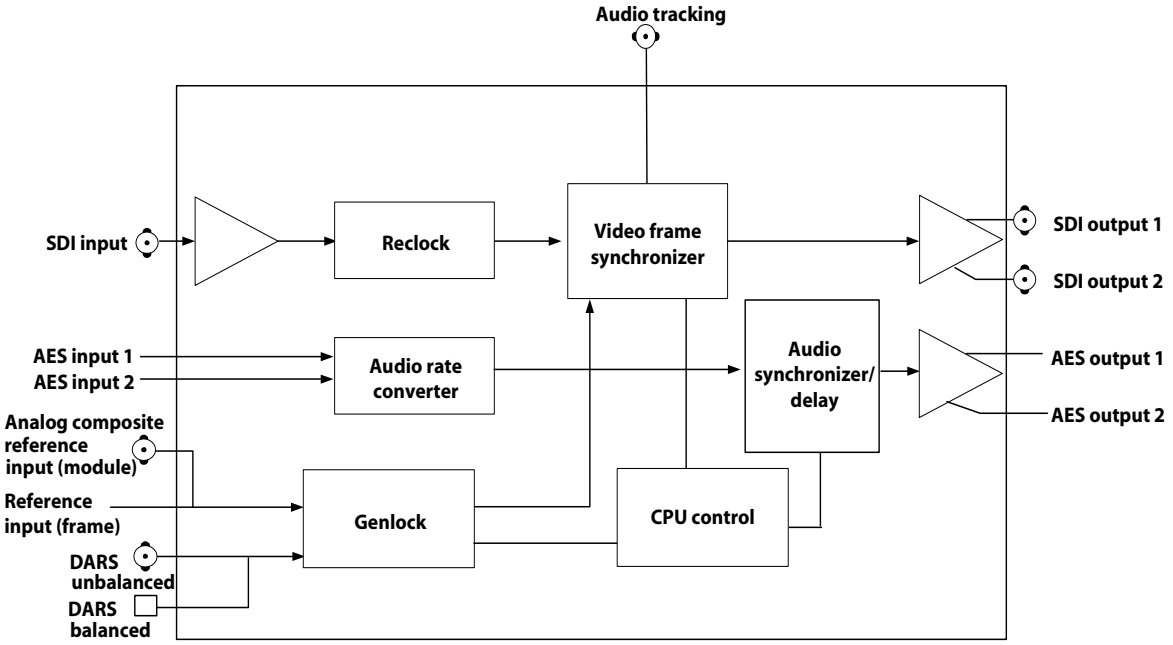

Figure 1-4. AVS6800+ Signal Flow Diagram

Chapter 2

Installation

Overview

This chapter describes the AVS6800**+** installation process, including the following topics:

- "Maximum 6800+ Frame Power Ratings" on page 10
- "Unpacking the Module" on page 11
- "Setting Jumpers" on page 12
- "Installing 6800+ Modules" on page 15
- "Upgrading Module Firmware" on page 16

See the *FR6802**+** Frame Installation and Operation Manual* for information about installing and operating an FR6802**+** frame and its components.

Caution

Before installing this product, read the *6800**+** Series Safety Instructions and Standards* manual shipped with every *FR6802**+** Frame Installation and Operation Manual* or downloadable from our website. This safety manual contains important information about the safe installation and operation of 6800**+** series products.

Maximum 6800+ Frame Power Ratings

The power consumption for the AVS6800+ module is 7.2 W.

Table 2-1 describes the maximum allowable power ratings for 6800+ frames. Note the given maximums before installing any 6800+ modules in your frame.

Table 2-1. Maximum Power Ratings for 6800+ Frames

6800+ Frame Type	Max. Frame Power Dissipation	Number of Usable Slots	Max. Power Dissipation Per Slot
FR6802+XF (frame with AC power supply)	120 W	20	6 W
FR6802+XF48 (frame with DC power supply)	105 W	20	5.25 W
FR6802+QXF frame (with AC or DC power supply)	120W	20	6 W

Unpacking the Module

Preparing the Product for Installation

Before you install the AVS6800+, perform the following:

- Check the equipment for any visible damage that may have occurred during transit.

  Confirm receipt of all items on the packing list. See "Checking the Packing List" for more information.
- Remove the anti-static shipping pouch, if present, and all other packaging material.
- Retain the original packaging materials for possible re-use.

Note

Contact your Customer Service representative if parts are missing or damaged.

See "Unpacking/Shipping Information" on page ix for information about returning a product for servicing.

Checking the Packing List

Table 2-2. Available Product Packages

Ordered Product	Content Description
AVS6800+B2 or AVS6800+C2	• One AVS6800+B2 or AVS6800+C2 front module • One *AVS6800+ Installation and Operation Manual*
AVS6800+B2D or AVS6800+C2D	• One AVS6800+B2 or AVS6800+C2 front module • One standard, double-slot, 10 BNC back connector • One *AVS6800+ Installation and Operation Manual*
AVS6800+B2DR or AVS6800+C2DR	One standard, double-slot, 10 BNC back connector or one specific balanced back connector (B2 version)

Setting Jumpers

The AVS6800**+** module has three jumpers that you need to set:

- **CJPC1**: local/remote control
- "**B**" and "**C**": balanced/unbalanced DARS input (AVS6800**+**B2 modules only)

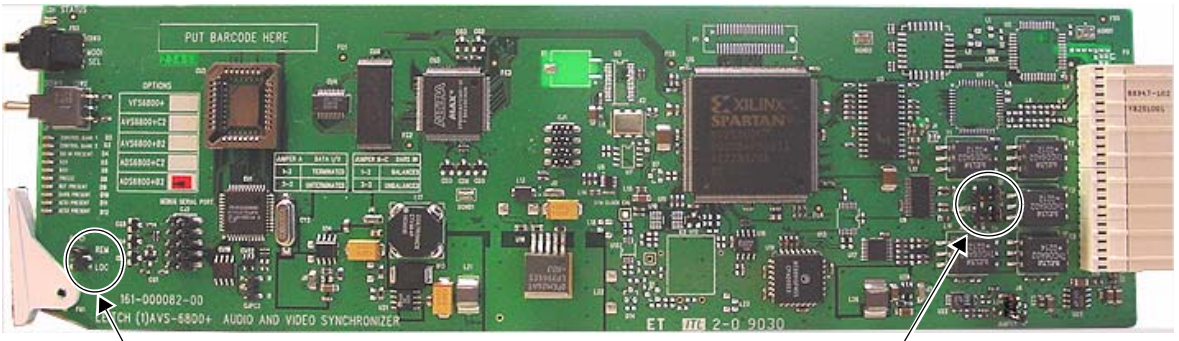

Figure 2-1. Location of Jumpers on AVS6800**+** Module

Setting Jumper CJPC1 for Local or Remote Control

You need to configure modules for local or remote operation *prior* to power-up. To change the configuration, first remove power from the module, reset the jumper, and then reapply power.

Follow this procedure to set the **CJPC1** jumper for either local or remote control:

1. Locate jumper **CJPC1** on the module (beside the extractor handle).

   Figure 2-1 shows the location of the **CJPC1** local/remote jumper.

2. Place a jumper on pins 1 and 2 to set the module for **Local** control or pins 2 and 3 to set the module for **Remote** control. See Figure 2-2.

Note

The white triangle near the jumper pins on the module indicates pin 1.

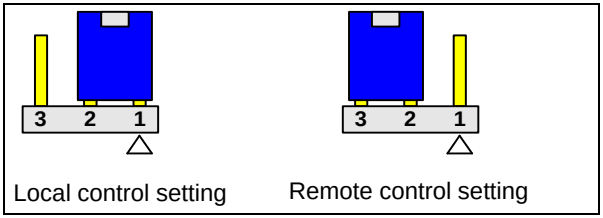

Figure 2-2. The **CJPC1** Settings for Local and Remote Control

See Chapter 1, Table 1-1 on page 5 for more information on local/remote control jumper functionality.

Setting Jumpers "B/C" for Balanced/Unbalanced DARS Input

Note

These jumper settings are not available on AVS6800**+**C2 modules.

Follow this procedure to set the "**B**" and "**C**" jumpers for either a balanced or unbalanced DARS input on an AVS6800**+**B2 module:

1. Locate jumpers "**B**" and "**C**" on the module.

   Figure 2-1 on page 12 shows the location of the "**B**" and "**C**" jumpers.

Place a jumper on pins 1 and 2 to set the module for **Balanced** DARS input, or pins 2 and 3 to set the module for **Unbalanced** DARS input. See Figure 2-3.

Do this for both jumpers. Both jumpers must be set identically to correctly change the signal path.

Note

The white triangle near the jumper pins on the module indicates pin 1.

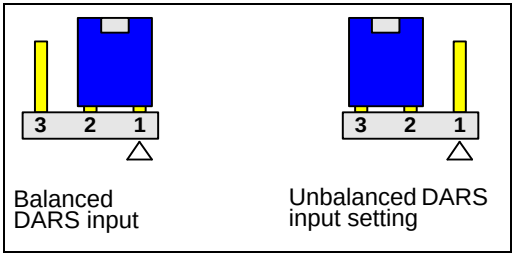

Figure 2-3. "**B**" and "**C**" Jumper Settings for Balanced and Unbalanced DARS Inputs

Installing 6800+ Modules

Required Frames and Back Connector Types

The AVS6800**+** modules have double-width back connectors that can be installed in an FR6802**+**XF or FR6802**+**QXF frame. AVS6800**+** modules cannot be installed in a FR6802**+**DM frame, a FR6800/7000 frame, or a frame without fans.

See the *FR6802**+** Frame Installation and Operation Manual* for details on installing back connectors in an FR6802**+** frame.

Installing and Removing AVS6800+ Modules

These modules require no specialized installation or removal procedures. However, if installing both front and rear modules, ensure that the back module is installed first before plugging in the front module. When removing both the front and rear modules, ensure that the front module is unplugged from the frame first, before removing the rear module.

Caution

Before removing, inserting, or replacing a back module in your frame, you must remove power from the frame. Failure to power down the frame could result in damage to the frame, modules, or power supply.

- See the *FR6802**+** Frame Installation and Operation Manual* for information about installing and operating an FR6802**+** frame and its components.
- See the *6800**+** Safety Instructions and Standards Manual* for important information about safely installing your module.

Once you have installed your AVS6800**+** modules, you can connect them to the appropriate input and outputs.

See Figure 1-2 on page 5 and Figure 1-3 on page 6.

Upgrading Module Firmware

Firmware upgrading is a routine procedure that you must perform to install newer versions of software on 6800+ modules. CCS Pilot, CoPilot, or Navigator software version 3.1.1 or later is required for this procedure. The frame must contain or be connected to another frame that contains an ICE6800+ or a 6800+Eth module.

Note

Firmware for the AVS6800+ must be updated in Boot Loader mode.

In the unlikely event that the upgrade fails (because of such situations as network interruptions, power failures, etc.), the module may not respond to controls and will appear to be non-functional. In that event, follow the procedures described in “Correcting a Failed Upgrading Procedure” on page 20.

Upgrading the Firmware

You can upgrade your 6800+ module’s firmware using the Software Upgrade tool. This tool is included with CCS Pilot, Co-Pilot, or Navigator software version 3.1.1 or later.

Caution

The **File Transfer** tab is not meant to be used for firmware upgrades. For best results, use the Software Uprade tool to upgrade module firmware.

To upgrade your module’s firmware, follow these steps:

1. Download the most recent appropriate upgrade package from our Web site or from your CD-ROM.

2. Remove the module from the 6800**+** frame.

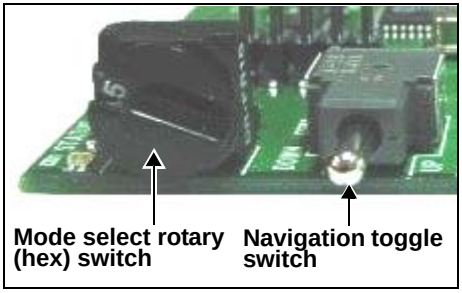

Figure 2-4. Buttons on a Typical Card Edge

3. Set the Hex switch to **F**.
4. While pressing the Navigation toggle switch down, reinsert the module into the frame and then release the Navigation toggle switch.
5. Perform a Discovery operation to discover the module, as described in "Discovering a DAV6800+ Module" on page 30.

Note

Information about discovering modules can also be found in your CCS software application manual or online help. (If you cannot discover the device, see "Manually Adding a Device to the Discovery or Network Folder" on page 21.)

6. From the **Tools** menu, select **Software Upgrade**.

   The **Software Upgrade** window opens or is brought to the foreground.

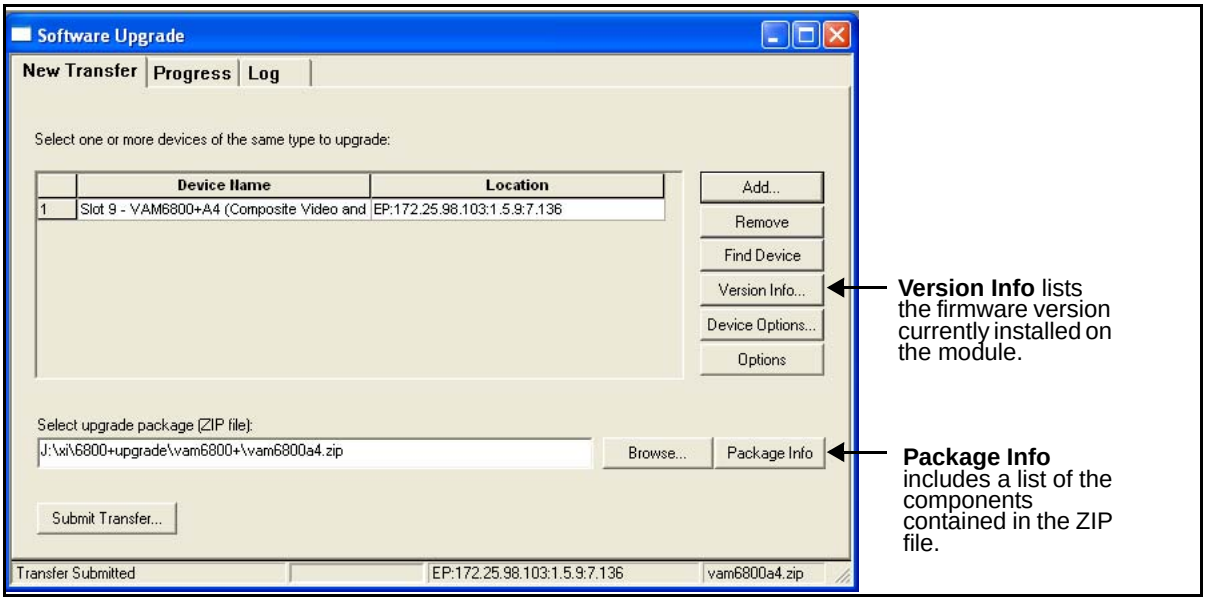

Figure 2-5. Software Upgrade Tool's New Transfer Tab

7. On the **New Transfer** tab, click **Add**.

   The **Device Selection** dialog opens.

8. Select one or more devices, and then click **OK** to close the **Add Device** dialog box.

   Note

   You can only add one unit from each IP address. All items in a frame have the same IP address.

   The selected devices appear in the table under **Device Name**. These devices will receive the same upgrade package.

9. Before proceeding with the firmware upgrade, you can—

   - Highlight the module's position in the Navigation window by clicking **Find Device**.
   - View the firmware version currently installed on the module by clicking **Version Info**.

10. Press **Browse...** to select the software upgrade package (ZIP file).

    A standard **Windows File Selection** dialog opens.

11. Choose the upgrade ZIP file on a local or network drive.

    The selected file's path name is displayed in the edit box to the left of the **Browse…** button.

Note

The extraction process on the ZIP file is handled as part of the upgrade process. You do not need to extract the files yourself. You can view the contents of the ZIP file by clicking **Package Info.**

12. Press **Submit Transfer...**

    A dialog box opens, requesting confirmation that you want to proceed with the request. If you have multiple devices selected, multiple transfer tasks are submitted—one per device.

    The transfer now progresses. You may minimize the **Software Upgrade** window, continue with other tasks, or switch to the **Progress** tab to view the status of the transfers.

Note

Closing the **Software Upgrade** window does not effect any of the transfer processes that may be running in the background. If you try to log off or exit the CCS software while a transfer is underway, a notification window will alert you that processes are still active and will ask if you want to terminate these processes.

13. Click on the **Log** tab and look at the **Progress** column to ensure that all files have correctly updated.

14. When the update is complete, reboot the module by manually pulling it out and then pushing it back into its slot in the frame.

    You cannot click **Reboot Device** to reboot 6800**+** modules that must be upgraded in Boot Loader mode.

Your upgrade procedure is complete.

If for some reason the upgrade fails, the module may not respond to controls and will appear to be non-functional. In that event, follow the procedures described in "Correcting a Failed Upgrading Procedure" on page 20.

Correcting a Failed Upgrading Procedure

Firmware upgrades may fail in the event of network interruptions, power failures, or if the wrong upgrade package was transferred to the module. These problems can be corrected by upgrading the firmware while the module is in Boot Loader mode. The upgrade won't work unless you put the module in Boot Loader mode.

Note

If you have not already downloaded the most recent appropriate upgrade package from our Web site or from your CD-ROM, do so now.

Putting the Module in Boot Loader Mode

Follow these steps to put your the module in Boot Loader mode:

1. Remove the affected module from the 6800**+** frame.

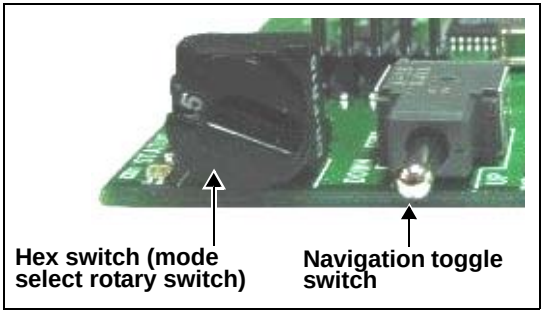

Figure 2-6. Buttons on a Typical Card Edge

2. Set the hex switch to **F**.
3. While pressing the Navigation toggle switch down, reinsert the module into the frame.

If your device is listed in the **Discovery** or **Network** folder, you can continue the firmware upgrade as described in "Upgrading the Firmware" begining with step **6** on page 18. If not, you must manually add the device to the **Discovery** or **Network** folder. To do this, see the next section.

Manually Adding a Device to the Discovery or Network Folder

If your device is not listed in the **Discovery** or **Network** folder, you must manually add it to these folders. After you add the device, you can use the **Software Upgrade** dialog box to continue with the module firmware upgrade.

To manually add a device to the **Discovery** or **Network** folder, follow these steps:

1. Enter Build mode, and then drag or copy and paste the module's device icon from the **Catalog** folder into the **Network** or **Discovery** folder.
2. Right-click the device icon, and then select **Properties**.
3. On the **Device** tab of the **Navigation Properties** box, enter the IP address of the frame that holds the module. (See Figure 2-7.)

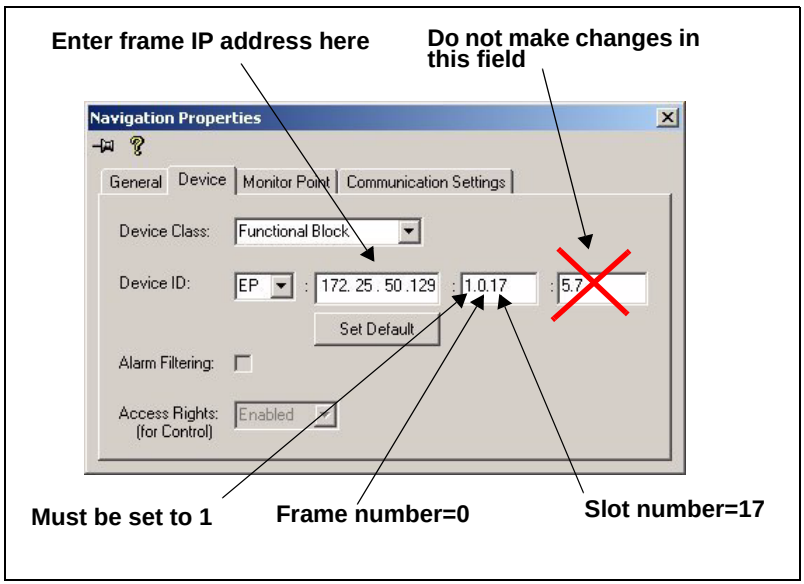

Figure 2-7. Navigation Properties Box

Caution

If you make changes in the last field (located above and to the right of the **Set Default** button), you may lose your connection to the module. If this happens, you will need to rediscover the module.

4. In the third field, enter

   `1.0.[slotnumber]`

   (where, for example, 1.0.5 would refer to the module in slot 5 of the frame number 0).

5. Close the window.

6. You can now continue your firmware upgrade as described in "Upgrading the Firmware" begining with step **6** on page 18.

Chapter 3

Operation

Overview

This chapter describes how to operate the AVS6800**+**.

The following topics are discussed in this chapter:

- “Changing Parameter Settings” on page 29
- “Cross-Functional Parameter Changes” on page 26
- “Changing Parameter Settings” on page 29
- “Setting AVS6800+ Control Parameters” on page 31
- “LEDs and Alarms” on page 43

See the following documents for information on how to operate this product remotely:

- *+Pilot Lite User Manual* for serial interface
- CCS Pilot, CoPilot, Navigator, or RCP-CCS-1U Remote Control Panel manual for Ethernet interface

Operating Notes

When setting the control parameters on the AVS6800**+**, observe the following:

- If you make changes to certain parameters, other related parameters may also be affected. See the section "Cross-Functional Parameter Changes" on page 26 in this chapter for more information.
- When you change a parameter, the effect is immediate. However, the module requires up to 20 seconds to save the latest change. After 20 seconds, the new settings are saved and will be restored if the module loses power and must be restarted.
- In a **Non-PCM** mode of operation, audio sample rate conversion cannot be performed. *The input audio must be locked to the output video of the AVS6800**+** module.* Although the audio synchronizer is forced to operate as an audio delay line only, the video path may still perform as a synchronizer if desired. If only *one* **AES Input** channel is switched to **Non-PCM** mode while the **Track Video** parameter is set to **Yes**, expect an audio disruption on the other **AES Input** channel that is set to **PCM** mode due to the resetting of its audio timing.
- For AES11 compliance in **525** mode, the AVS6800**+** module requires the presence of a DARS signal locked to the reference video in **Synchronizer Mode** and to the input video in **Delay Mode**. A DARS signal is not required for AES11 compliance in **625** mode.

Genlock Controls

The AVS6800**+** uses a combination of the **SDIStdFb** and **GlLockSrc** parameters to decide which physical input (module or frame) is used as the genlock source.

For example, with an input SDI standard of 525 and a working Genlock video standard of 525 applied to the module's back connector, set the **GlLockSrc** to **Frame Ref 625**. In this case the module will expect a Genlock standard of 525 and will look to the module's back connector (not the frame input connector) to locate it.

Table 3-1 illustrates the settings for the four possible combinations of Genlock video standard and source selection.

Table 3-1. Possible combinations of Genlock Video Standard and Genlock Source Location

Working Genlock Standard and Source	SDIStd Fb	GlLockSrc Setting
525 to the module	D1-525	Frame Ref 625
525 to the frame	D1-525	Frame Ref 525
625 to the module	D1-625	Frame Ref 525
625 to the frame	D1-625	Frame Ref 625

Cross-Functional Parameter Changes

When you configure certain parameters, you force a change in other associated parameters. Table 3-2 to Table 3-5 describe those parameters affected by the following parameter option settings:

- SDI IP Video STD Set
- Frame Delay
- Mute 1A/1B/2A/2B
- AES1/AES2 Format Set

Video Standard Setting

Depending on the setting for the **SDI IP Video STD Set** parameter, the **D1 Hue** parameter may be disabled, and the ranges for the **Vertical Phase** and **Horizontal Phase** parameters will be different.

Table 3-2. Cross-Functional Parameter Changes—*SDI IP Video STD Set*

Affected Parameter	Change Effected by D1-525 Option	Change Effected by D1-625 Option
D1 Hue	Enabled	Disabled
Vertical Phase	0 to 524 lines	0 to 624 lines
Horizontal Phase	0 to 63.158 µs	0 to 63.693 µs

Frame Delay

Depending on the **Frame Delay** parameter setting, some parameters may be activated or deactivated, as shown in Table 3-3.

Table 3-3. Cross-Functional Parameter Changes—*Frame Delay*

Affected Parameter	Change Effected by ON Option	Change Effected by OFF Option
Vertical Phase	Disabled	Enabled
Horizontal Phase	Disabled	Enabled

Mute and Gain

When you mute an audio channel (using parameters **Mute 1A/1B/2A/2B**), the corresponding **Gain** parameter is deactivated, as described in Table 3-4.

Table 3-4. Cross-Functional Parameter Changes—*Mute and Gain*

Condition	Enabled/Disabled Parameter
Mute 1A = On Mute 1A = Off	Gain 1A = Disabled Gain 1A = Enabled
Mute 1B = On Mute 1B = Off	Gain 1B = Disabled Gain 1B = Enabled
Mute 2A = On Mute 2A = Off	Gain 2A = Disabled Gain 2A = Enabled
Mute 2B = On Mute 2B = Off	Gain 2B = Disabled Gain 2B = Enabled

AES Format Set

When the **AES1 Format Set** or **AES2 Format Set** parameter is configured to Non-PCM, various associated parameters are disabled, as shown in Table 3-5:

Table 3-5. Cross-Functional Parameter Changes—*AES Format Set*

Parameter Set to Non-PCM	Disabled Parameters
AES1 Format Set	• Gain 1A (also set to 0 dB) • Gain 1B (also set to 0 dB) • OutChannel 1A Status • OutChannel 1B Status • Track Video • Fade Rate
AES2 Format Set	• Gain 2A (also set to 0 dB) • Gain 2B (also set to 0 dB) • OutChannel 2A Status • OutChannel 2B Status • Track Video • Fade Rate

Note

When *either* the **AES1 Set** or **AES2 Set** parameter is set to Non-PCM, the **Track Video** and **Fade Rate** parameters are disabled.

When the **AES1 Set** or **AES2 Set** parameter is set to PCM, the associated **Gain** and **Out Channel Status** parameters are enabled. When *both* **AES1 Set** and **AES2 Set** are set to PCM, the **Track Video** and **Fade Rate** parameters are enabled.

Changing Parameter Settings

You can change parameter settings at the card edge for AVS6800**+** modules, or you can change the parameter settings, and view read-only parameters, and view alarms and adjust alarm settings using CCS software. See the following topics for more information:

- “Changing Parameter Settings using Card Edge Controls” on page 29
- “Changing Parameters Using CCS Software” on page 36

Changing Parameter Settings using Card Edge Controls

Follow these steps to change the AVS6800**+** parameter settings:

1. Rotate the mode select rotary switch (hex switch) to “0.”
2. Once the hex switch is set to “0,” toggle the navigation switch up or down to select a bank.

   View the two control LEDs next to the navigation toggle switch to see which bank is currently selected.

   Table 3-6. Selected Bank as Indicated by Control LEDs

Control Bank LED 1 **(first top LED)**	**Control Bank LED 2** **(second bottom LED)**	**Bank Number**
Off	Off	0
On	Off	1
Off	On	2

   See Table 3-2 “Parameter Options” to view the various banks, hex switch positions, and corresponding parameter options and values.
3. Rotate the hex switch to the parameter number (1 to 9) or letter (A to F) of the option you want to set.
4. Toggle the navigation switch to select and set the value of the chosen parameter.

5. Rotate the hex switch to another parameter number/letter in the current bank, and then repeat step 4.

   or

   Rotate the hex switch to “0” again to select a different bank, and then repeat steps 3 and 4.

Note

For best results, use the available 6800**+** software control options (serial/local or Ethernet/remote) to aid in viewing, setting, and confirming parameter values.

Recalling Default Parameter Settings

Table 3-2 “Parameter Options” describes all of the parameter settings for the AVS6800**+**, including the original factory defaults. To return this module to its default settings, you can either reset each parameter individually or do a global recall following this procedure:

1. Rotate the hex switch to “0.”
2. Toggle the navigation switch to the bank number “0.”

   Use the control LEDs to verify which bank you have selected, or use an available 6800**+** software control option (serial/local or Ethernet/remote) to aid in confirming your bank selection.
3. Rotate the hex switch to the global recall parameter “F.”
4. Toggle the navigation switch to “On.”

   Use an available 6800**+** software control option to aid in viewing, setting, and confirming the parameter value.

Reading Software and Hardware Versions

The current software version of your AVS6800**+** module can only be viewed using a CCS-enabled control panel or a CCS software application, such as Pilot or **+**Pilot Lite. See your *RCP-CCS-1U Installation and Operation Manual,* CCS software application user manual, or CCS software application online help for information on viewing software and hardware version numbers.

Setting AVS6800+ Control Parameters

The following table lists all of the available parameters and options for the AVS6800**+**. *All parameters clip unless otherwise indicated*.

The On/Off combinations of the control LEDs on the card-edge indicate the active bank number. See "Changing Parameter Settings" for more information.

Legend

Bold option=Indicates that this is the default setting for the parameter

Note

The sequence of options listed in the **Parameter Option** column mirrors the sequence achieved when you move the Navigation Toggle switch up.

Table 3-7. Card-Edge Parameter Options

Bank, Rotary Switch	Parameter Name	CCS Parameter Name	Function	Parameter Option
0, 1	SDI IP Video Std Set	SDIStdSet	Selects the line standard for the incoming digital video See Table 3-2 on page 26 for a list of other parameters affected by this setting	• D1-525 • D1-625 • **AUTO**
0, 2	D1 Black Level	D1BlkLvl	Adjusts the picture brightness of the incoming D1 digital video signal	±7.534 IRE (**0.0**)
0, 3	D1 Luminance Gain	D1_YGain	Adjusts the luminous intensity of the incoming D1 digital video signal	±3.0 dB (**0.0**)
0, 4	D1 Chrominance Gain	D1_CGain	Adjusts the picture color saturation of the incoming D1 digital video signal	±3.0 dB (**0.0**)

Table 3-7. Card-Edge Parameter Options *(Continued)*

Bank, Rotary Switch	Parameter Name	CCS Parameter Name	Function	Parameter Option
0, 5	D1 Hue	D1_Hue	Adjusts the hue of the incoming D1 digital video signal See Table 3-2 on page 26	±180 ° (**0 °**)
0, 6	D1 Black Clip	D1_BlkClp	Controls the activation of D1 black clip	• **Off** • On
0, 7	D1 Black Clip Level	D1BClpLvl	Sets the black clip level of the incoming D1 digital video signal	±47.9 mV (**-47.9**)
0, 8	D1 White Clip	D1_WhtClp	Controls the activation of D1 white clip	• **Off** • On
0, 9	D1 White Clip Level	D1WClpLvl	Sets the white clip level of the incoming D1 digital video signal	±63.13 mV (**63.13**)
0, A	Vertical Phase	VPhase	Adjusts the vertical timing (This parameter is disabled when the **Frame Delay** parameter is set to **On**)	• **0** to 624 Ln (When SDI Input video is set to D1-525) • 0 to 524 Ln (When SDI Input video is set to D1-625)
0, B	Horizontal Phase	HPhase	Adjusts the horizontal timing (This parameter is disabled when the **Frame Delay** parameter is set to **On**)	• **0.0** to 63.963 µs (When SDI Input video is set to D1-525) • **0.0** to 63.518 µs (When SDI Input video is set to D1-625)
0, C	Frame Sync Mode	FSMode	Selects the operational mode for the Frame Synchronizer	• Delay Mode • **Sync Mode**

Table 3-7. Card-Edge Parameter Options *(Continued)*

Bank, Rotary Switch	Parameter Name	CCS Parameter Name	Function	Parameter Option
0, D	Video OP Mode	VLOV Mode	Selects the output video mode when the input video is disrupted	• Pass • Black • **Freeze**
0, E	Frame Delay	FrDelay	Introduces one frame delay See Table 3-3 on page 26 for a list of other parameters affected by this setting	• **Off** • On
0, F	Factory Recall	FctryRcl	Recalls the factory settings	• **Off** • On
1, 1	Force Black	Force_Blk	Sets the video contents to Black	• **Off** • On
1, 2	Freeze Type	FrzType	Selects the type of video freeze	• Field 2 • **Field 1** • Frame
1, 3	Force Freeze	Force Frz	Forces the output video to freeze	• **Off** • On
1, 4	GL Lock Source	GlLockSrc	Selects the reference standard for the in-frame Genlock circuitry	• **Frame Ref 525** • Frame Ref 625
1, 5	Delay: In 1A	Delay_1A	Delay adjustment for Input Channel 1A	**0.0** to 1320.0 ms
1, 6	Delay: In 1B	Delay_1B	Delay adjustment for Input Channel 1B	**0.0** to 1320.0 ms
1, 7	Delay: In 2A	Delay_2A	Delay adjustment for Input Channel 2A	**0.0** to 1320.0 ms
1, 8	Delay: In 2B	Delay_2B	Delay adjustment for Input Channel 2B	**0.0** to 1320.0 ms
1, 9	Gain: In 1A	Gain_1A	Gain adjustment for Input Channel 1A (Disabled when **Mute 1A** is set to **ON**, and when **AES1 Format** is set to Non-PCM)	±18.0 dB (**0.0**)

Table 3-7. Card-Edge Parameter Options *(Continued)*

Bank, Rotary Switch	Parameter Name	CCS Parameter Name	Function	Parameter Option
1, A	Gain: In 1B	Gain_1B	Gain adjustment for Input Channel 1B (Disabled when **Mute 1B** is set to **ON**, and when **AES1 Format** is set to Non-PCM)	±18.0 dB (**0.0**)
1, B	Gain: In 2A	Gain_2A	Gain adjustment for Input Channel 2A (Disabled when **Mute 2A** is set to **ON**, and when **AES2 Format** is set to Non-PCM)	±18.0 dB (**0.0**)
1, C	Gain: In 2B	Gain_2B	Gain adjustment for Input Channel 2B (Disabled when **Mute 2B** is set to **ON**, and when **AES2 Format** is set to Non-PCM)	±18.0 dB (**0.0**)
1, D	Audio Output Mode	ALOVMode	Selects the output audio mode when the input video is disrupted	• **Pass** • Mute
1, E	Track Video	TrackVid	Tracks automatically the delay introduced by the video frame synchronizer (See "Operating Notes" on page 24; disabled when **AES1 Format Set** or **AES2 Format Set** parameter is set to Non-PCM)	• No • **Yes**
1, F	Fade Rate	Fade Rate	Control the rate of fading when channels are swapped or muted (Disabled when **AES1 Format Set** or **AES2 Format Set** parameter is set to Non-PCM)	0.0 to 10.0 sec (**0.1**)
2, 1	Mute 1A	Mute 1A	Mutes Output Channel 1A (When this parameter is set to **On**, the **Gain 1A** parameter is **Disabled**)	• **Off** • On

Table 3-7. Card-Edge Parameter Options *(Continued)*

Bank, Rotary Switch	Parameter Name	CCS Parameter Name	Function	Parameter Option
2, 2	Mute 1B	Mute 1B	Mutes Output Channel 1B (When this parameter is set to **On**, the **Gain 1B** parameter is **Disabled**)	• **Off** • On
2, 3	Mute 2A	Mute 2A	Mutes Output Channel 2A (When this parameter is set to **On**, the **Gain 2A** parameter is **Disabled**)	• **Off** • On
2, 4	Mute 2B	Mute 2B	Mutes Output Channel 2B (When this parameter is set to **On**, the **Gain 2B** parameter is **Disabled**)	• **Off** • On
2, 5	AES1 Format Set	AES1FrmtSt	Selects the input format for the specified AES input signal See "Operating Notes" on page 24 and Table 3-5 on page 28 for a list of other parameters affected by this setting	• **PCM** • Non-PCM
2, 6	AES2 Format Set	AES2FrmtSt		
2, 7	Channel 1A Resln	Ch1A_Resln	Selects the resolution for the specified output channel	• 16 bits • **20 bits** • 24 bits
2, 8	Channel 1B Resln	Ch1B_Resln		
2, 9	Channel 2A Resln	Ch2A_Resln		
2, A	Channel 2B Resln	Ch2B_Resln		

Changing Parameters Using CCS Software

Before using CCS software applications to change your module's parameter settings, you must refresh (**+**Pilot Lite) or discover (Pilot and Navigator) the module. Refresh and Discovery are the processes by which your CCS software finds, and then connects to your module.

Refreshing Your Module Using +Pilot Lite

When using **+**Pilot Lite to change your AVS6800**+** control parameters, you must "refresh" the control connection between your 6800**+** frame and PC. To refresh the connection, from the **+**Pilot Lite menu bar, select **File** > **Refresh**. For information about controlling a device using **+**Pilot Lite, see your **+**Pilot Lite *User Manual*.

Discovering an AVS6800+ Module

To discover your module, your Pilot or Navigator software must be in Build mode. Follow these steps:

1. If the Discovery window is not open, click **Tools** > **Discovery** in the main menu.

   A **Discovery** window opens, most likely in the bottom left corner of the screen.

2. Click **Options**, and then click **Add**.
3. Enter the IP address of the frame that contains your module, the frame that contains your ICE6800**+** module, or the frame that contains a 6800+Eth module that provides access to your module.
4. Click **OK** to close the **Add IP address** window, and then **OK** again to close the **Discovery Options** window.
5. Click **Start**.

   This triggers Pilot or Navigator to run a discovery.

6. When your discovery is complete, **Discovery Completed** is displayed in the **Discovery** window. To continue, click **Save**, to save the contents of your discovery to the **Discovery** folder of the **Navigation** pane.

You can now switch to Control mode by selecting **Operational Mode** > **Control** from the main menu. Double-click AVS6800**+** in the Navigation pane. The **Control** window opens displaying the module's controls.

Setting AVS6800+ Remote Control Parameters

The following table lists all of the remote control parameters and options for the AVS6800**+**. To access these parameters, you must use + Pilot Lite or CCS control software such as Pilot or Navigator. See your software user manual for more information.

Note that rows in the table that contain a range of numbers in parentheses indicate that a series of nmbered parameters contain that same function and range.

Legend

Bold option=Indicates that this is the default setting for the parameter.

Rows of the table that are in grey are read-only parameters.

All parameters clip unless otherwise indicated.

Table 3-8. Remote Control Parameters—AVS6800**+**

Path	Parameter Name	Function	Options or User Range
Input > Genlock	GlLocked	Reports the locked status of the external reference signal	• No • Yes
	GlVPrsnt	Reports the presence of the video signal from the external reference source	• No • Yes
	GlLockSrc	Selects the reference standard for the in-frame Genlock circuitry	• **Frame Ref 525** • Frame Ref 625
	GLStdFb	Returns detected reference standard	• Detected standard 625 • Detected standard 525
	DARSPrsnt	Returns the presence of input DARS signal	• No • Yes
	DARSLock	Returns the locking status of DARS input with respect to external reference video signal	• No • Yes
Input > Other	SdiPrsnt	Reports the presence of the SDI input signal	• No • Yes
	SDIStd Fb	Reports the detected SDI input video signal standard	• D1-525 • D1-625 • Unknown

Table 3-8. Remote Control Parameters—AVS6800+

Path	Parameter Name	Function	Options or User Range
	SDIStdSet	Selects the line standard for the incoming digital video See Table 3-2 on page 26 for a list of other parameters affected by this setting	• D1-525 • D1-625 • **AUTO**
	AES1_Present	Returns presence of AES 1 input signal	• No • Yes
	AES2_Present	Returns presence of AES 2 input signal	• No • Yes
	AES1FrmtSt	Selects the input format for AES 1 input signal See "Operating Notes" on page 24 and Table 3-5 on page 28 for a list of other parameters affected by this setting	• **PCM** • Non-PCM
	AES1 Vbit	Indicates whether V bit in AES 1 is set	• Not set • Set
	AES2FrmtSt	Selects the input format for AES 2 input signal See "Operating Notes" on page 24 and Table 3-5 on page 28 for a list of other parameters affected by this setting	• **PCM** • Non-PCM
	AES2 Vbit	Indicates whether V bit in AES 2 is set	• Not set • Set
Processing > Synchronization delay	VPhase	Adjusts the vertical timing (This parameter is disabled when the **Frame Delay** parameter is set to **On**)	• **0** to 624 Ln (When SDI Input video is set to D1-525) • 0 to 524 Ln (When SDI Input video is set to D1-625)
	HPhase	Adjusts the horizontal timing (This parameter is disabled when the **Frame Delay** parameter is set to **On**)	• **0.0** to 63.963 µs (When SDI Input video is set to D1-525) • **0.0** to 63.518 µs (When SDI Input video is set to D1-625)

Table 3-8. Remote Control Parameters—AVS6800+

Path	Parameter Name	Function	Options or User Range
	FrDelay	Introduces one frame delay See Table 3-3 on page 26 for a list of other parameters affected by this setting	• **Off** • On
	FSMode	Selects the operational mode for the Frame Synchronizer	• Delay Mode • **Sync Mode**
	VLOV Mode	Selects the output video mode when the input video is disrupted	• Pass • Black • **Freeze**
	FrzType	Selects the type of video freeze	• Field 2 • **Field 1** • Frame
	Force Frz	Forces the output video to freeze	• **Off** • On
	Delay_1A	Delay adjustment for the specified input channel	**0.0** to 1320.0 ms
	Delay_1B		
	Delay_2A		
	Delay_2B		
	ALOVMode	Selects the output audio mode when the input video is disrupted	• **Pass** • Mute
	TrackVid	Tracks automatically the delay introduced by the video frame synchronizer See "Operating Notes" on page 24 and Table 3-5 on page 28)	• No • **Yes**
Processing > AudioProc	Gain_1A	Gain adjustment for Input Channel 1A (Disabled when **Mute 1A** is set to **ON**, and when **AES1 Format** is set to Non-PCM)	±18.0 dB (**0.0**)
	Gain_1B	Gain adjustment for Input Channel 1B (Disabled when **Mute 1B** is set to **ON**, and when **AES1 Format** is set to Non-PCM)	±18.0 dB (**0.0**)

Table 3-8. Remote Control Parameters—AVS6800+

Path	Parameter Name	Function	Options or User Range
	Gain_2A	Gain adjustment for Input Channel 2A (Disabled when **Mute 2A** is set to **ON**, and when **AES2 Format** is set to Non-PCM)	±18.0 dB (**0.0**)
	Gain_2B	Gain adjustment for Input Channel 2B (Disabled when **Mute 2B** is set to **ON**, and when **AES2 Format** is set to Non-PCM)	±18.0 dB (**0.0**)
	Ch1A_Resln	Selects the Resolution for the specified output channel	• 16 bits • **20 bits** • 24 bits
	Ch1B_Resln		
	Ch2A_Resln		
	Ch2B_Resln		
Processing > ProcAmp	D1BlkLvl	Adjusts the picture brightness of the incoming D1 digital video signal	±7.534 IRE (**0.0**)
	D1_YGain	Adjusts the luminous intensity of the incoming D1 digital video signal	±3.0 dB (**0.0**)
	D1_CGain	Adjusts the picture color saturation of the incoming D1 digital video signal	±3.0 dB (**0.0**)
	D1_Hue	Adjusts the hue of the incoming D1 digital video signal See Table 3-2 on page 26	±180 ° (**0** °)
	D1_BlkClp	Controls the activation of D1 black clip	• **Off** • On
	D1BClpLvl	Sets the black clip level of the incoming D1 digital video signal	±47.9 mV (**-47.9**)
	D1_WhtClp	Controls the activation of D1 white clip	• **Off** • On
	D1WClpLvl	Sets the white clip level of the incoming D1 digital video signal	±63.13 mV (**63.13**)
Processing > Other	Force_Blk	Sets the video contents to Black	• **Off** • On

Table 3-8. Remote Control Parameters—AVS6800+

Path	Parameter Name	Function	Options or User Range
	Fade Rate	Control the rate of fading when channels are swapped or muted (Disabled when **AES1 Set** or **AES2 Set** is set to Non-PCM)	0.0 to 10.0 sec (**0.1**)
Output > Synchronization Delay	Video Frozen	Reports the output video frozen status	• No • Yes
Output > Audio Proc	Ch1AStatus	Output Channel 1A Status (When the **AES1 Format** parameter is set to non-PCM, this parameter is disabled)	• Active • Muted • Peak
	Ch1BStatus	Output Channel 1B Status (When the **AES1 Format** parameter is set to non-PCM, this parameter is disabled)	• Active • Muted • Peak
	Ch2AStatus	Output Channel 2A Status (When the **AES2 Format** parameter is set to non-PCM, this parameter is disabled)	• Active • Muted • Peak
	Ch2BStatus	Output Channel 2B Status (When the **AES2 Format** parameter is set to non-PCM, this parameter is disabled)	• Active • Muted • Peak
	Mute 1A	Mutes Output Channel 1A (When this parameter is set to **On**, the **Gain 1A** parameter is **Disabled**)	• **Off** • On
	Mute 1B	Mutes Output Channel 1B (When this parameter is set to **On**, the **Gain 1B** parameter is **Disabled**)	• **Off** • On
	Mute 2A	Mutes Output Channel 2A (When this parameter is set to **On**, the **Gain 2A** parameter is **Disabled**)	• **Off** • On
	Mute 2B	Mutes Output Channel 2B (When this parameter is set to **On**, the **Gain 2B** parameter is **Disabled**)	• **Off** • On

Table 3-8. Remote Control Parameters—AVS6800+

Path	Parameter Name	Function	Options or User Range
	Out1ASrc	Selects the source for the specified output AES	• In 1A (default for Out1ASrc) • In 1B (default for Out1BSrc) • In 2A (default for Out2ASrc) • In 2B (default for Out2BSrc) • In 1 Sum • In 2 Sum
	Out1BSrc		
	Out2ASrc		
	Out2BSrc		
Other	FctryRcl	Recalls the factory settings	• **Off** • On

LEDs and Alarms

Monitoring LEDs

The AVS6800**+** has eight monitoring LEDs that serve as a quick monitoring reference. Figure 3-9 shows the general location of the monitoring LEDs on a generic 6800**+** module. Table 3-9 describes each LED in more detail.

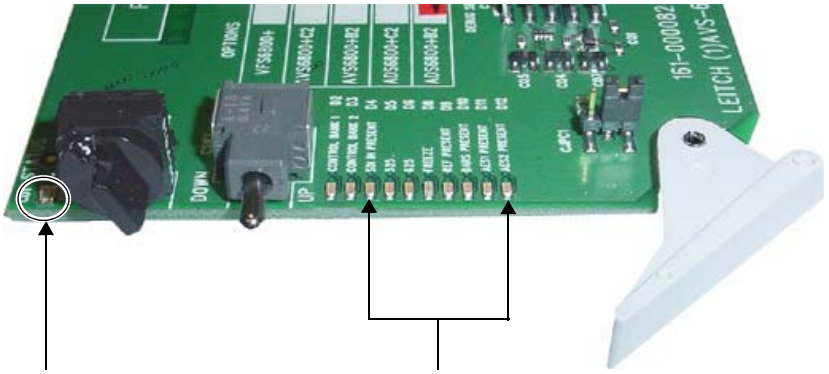

Table 3-9. Location of AVS6800+ LEDs

Table 3-10. Monitoring LEDs

LED	Description	Color Indication
Auto	Indicates whether the input SDI standard is set to Auto or Manual mode	• Green: Auto • Off: Manual
525	Indicates if the input video standard is 525	• Green: 525 • Off: not 525
625	Indicates if the input video standard is 625	• Green: 625 • Off: not 625
Freeze	Indicates if output video is frozen	• Green: video frozen • Off: video not frozen

Table 3-10. Monitoring LEDs *(Continued)*

LED	Description	Color Indication
Reference Present	Indicates if the reference signal is present	• Green: reference is present • Off: reference is absent
DARS Present	Indicates if the DARS signal is present	• Green: DARS signal present • Off: DARS signal absent
AES1 Present	Indicates if the AES1 signal is present	• Green: AES1 signal present • Off: AES1 signal absent
AES2 Present	Indicates if the AES2 signal is present	• Green: AES2 signal present • Off: AES2 signal absent

Module Status LEDs

The AVS6800**+** module does not have any card-edge alarms. Instead, module status LEDs on the corner of the module light up if an error is detected. See Figure 3-2 for the location of these LEDs, and Table 3-11 for a definition of the LED colors.

Alarms are usually logged and monitored within the available 6800**+** software control applications (for example, +Pilot Lite or Pilot). “Alarms” on page 46, and the appropriate software control user manual or online help for more information.

Table 3-11. Status LED Descriptions

LED Color Sequence	Meaning
Off	There is no power to the module; the module is not operational.
Green	There is power to the module; the module is operating properly.
Red	One or more of the following alarm conditions has occurred in the module: • Loss of AES • Loss of reference • Loss of reference_locked
Amber	One or more of the following alarm conditions has occurred in the module: • DARS lock • DARS present

Alarms

Table 3-12 describes the specific alarms for the AVS6800**+**. You can only identify specific alarms using a software control application.

Table 3-12. Alarm Definitions

Parameter Name	Alarm Description	Alarm Level
DARSPrsnt	Indicates that DARS signal is absent (The **DARSPrsnt** and **DARSLock** alarms are disabled when **SDI IP Video Std Set** is set to **625**)	Minor
DARSLock	Indicates the DARS signal is not locked	Minor
GlVPrsnt	Indicates a loss of reference signal	Major
GlLocked	Indicates that the module is not locked to the reference signal (The **GlLocked** alarm is disabled when **Frame Sync Mode** is set to **Delay Mode)**	Major
AES1_Prsnt	Indicates loss of AES signal	Major
AES2_Prsnt	Indicates loss of AES signal	Major

Chapter 4

Specifications

Overview

The following specification tables appear in this chapter:

- "SDI Video Input" on page 48
- "SDI Video Output" on page 48
- "AES Input and DARS" on page 49
- "AES Output" on page 50
- "External Reference Input" on page 51
- "Propagation Delay" on page 51
- "Power Consumption" on page 51

Specifications and designs are subject to change without notice.

SDI Video Input

Table 4-1. SDI Video Input Specifications

Item	Specification
Standard	SMPTE 259 M-C, 270 Mb/s, 525/625 component
Connector	BNC (IEC169-8)
Impedance	75Ω
Return loss	>18 dB to clock frequency
CMRR (common mode rejection ratio)	30 Vp-p, up to 60 Hz
Equalization	Automatic up to >23 dB, 259 M-C typical

SDI Video Output

Table 4-2. SDI Video Output Specifications

Item	Specification
Number of outputs	2
Standard	SMPTE 259 M-C, 270 Mb/s, 525/625 component
Connector	BNC (IEC169-8)
Impedance	75Ω
Return loss	>18 dB to 270 MHz
Signal level	800 mV ±10%
D.C offset	0.0 V ±0.5 V
Rise and fall time	400 to 1500 ps (20% to 80% amplitude)
Overshoot	<10% of amplitude
Jitter	<0.2 UI (740 ps) peak-to-peak, typically <500 ps

AES Input and DARS

Table 4-3. AES Input and DARS Specifications

Item	AVS6800+B2 Balanced Specification	AVS6800+C2 Unbalanced Specification
Number	2 + DARS	2 + DARS
Standard	AES 3	AES 3, SMPTE 276M
Type	Balanced, transformer coupled	Unbalanced, AC coupled
Connector	Balanced	BNC (IEC169-8)
Sensitivity	200 mV	100 mV
Impedance	110Ω ± 20% (0.1 to 6 MHz)	75Ω
Common mode rejection	0 to 7 V (0 to 20 kHz)	--
Input audio rate	32 to 108 kHz	32 to 108 kHz
Bits	Up to 24 bits, user selectable	Up to 24 bits, user selectable

AES Output

Table 4-4. AES Output Specifications

Item	AVS6800+B2 Balanced Specification	AVS6800+C2 Unbalanced Specification
Number	2	2
Standard	AES 3	AES 3, SMPTE 276M
Type	Balanced, transformer coupled	Unbalanced, AC coupled
Connector	Balanced	BNC (IEC169-8)
Impedance	110Ω ± 20% (0.1 to 6 MHz)	75Ω
Return loss	--	>25 dB, 0.1 to 6 MHz
Signal amplitude	2 to 7 Vp-p into 110Ω load	1.0 Vp-p ±10% into 75Ω load
Audio rate	48 kHz	48 kHz
Jitter	<20 ns peak-to-peak	<20 ns peak-to-peak
Rise/fall time	5 to 30 ns	30 to 44 ns
Bits	Up to 24 bits, user selectable	Up to 24 bits, user selectable
Channel status and user bit	Maintained, but professional mode, 48 kHz channel status bits are asserted	Maintained, but professional mode, 48 kHz channel status bits are asserted

External Reference Input

Note

The FR6802**+** frame has an extra external reference. See your FR6802**+** Frame Installation and Operation Manual for additional specifications.

Table 4-5. External Reference Input Specifications

Item	Specification
Level	1 Vp-p ±6 dB
Signal type	Analog composite NTSC/PAL-B/PAL-M
Connector	BNC (IEC 169-8)
Impedance	75Ω
Number of inputs	1 internal + 1 external (See note)
Return loss	>40 dB to 6 MHz

Propagation Delay

Table 4-6. Propagation Delay Specifications

Item	Specification
Video	4 us (for both 525 and 625 standards)
Audio	2.1 msec (minimum delay setting)

Power Consumption

The power consumption for the AVS6800**+** module is approximately 7.2 W

Appendix A

Audio Bit Manipulation

Overview

The tables in this appendix contain information on the manipulation of bits that occur when using the AVS6800**+** module.

The following items are documented:

- “C-Bit” on page 54
- “V- and U-Bit” on page 56
- “Miscellaneous Data” on page 56

Table A-1. Description of Short Forms in this Appendix

RX Key	TX Key
N=Not recognized	N=Not transmitted
Y=Recognized	Y=Transmitted
S=Recognized and stored, passed-through, or both	

C-Bit

Table A-2. C-Bit Data Description

Byte	Bit	Function	RX	TX	Remarks
0	0	[0] Consumer Use [1] Professional Use	N Y	N Y	Set to 1
0	1	[0] Audio [1] Non-Audio	S S	Y Y	Passed unmodified
0	2 to 4	[000] Not Indicated [100] No Emphasis [110] 50/15 us [111] CCITTJ17	S S S S	Y Y Y Y	Passed unmodified
0	5	[0] Locked [1] Unlocked	N N	Y N	Set to 0
0	6 to 7	[00] Not indicated [01] 48 kHz [10] 44.1 kHz [11] 32 kHz	Y Y Y Y	N Y N N	Set to [01]
1	0 to 3	[0000] Not indicated [0001] Two channel [0010] Mono [0011] Prim/sec [0100] Stereo [0101] to [1111] Undefined	S S S S S S	Y Y Y Y Y Y	Passed unmodified
1	4 to 7	[0000] Not indicated [0001] 192 bit block [0010] AES18 (HDLC) [0011] User defined [0100] to [1111] Undefined	S S S S S	Y Y Y Y Y	Passed unmodified
2	0 to 2	[000] Not Indicated [001] Audio data [010] Co-ordination signal [011] to [111] Undefined	N N N N	Y Y N N	Set to [001] if 24 bits; otherwise, set to [000]

Table A-2. C-Bit Data Description *(Continued)*

Byte	Bit	Function	RX	TX	Remarks
2	3 to 5	[000] Not indicated [001] Max Length - 1 [010] Max Length - 2 [011] Max Length - 3 [100] Max Length - 4 [101] Max Length [110] to [111] Undefined	N N N N N N N	N N N N Y Y N	Set to [100] if 16 bits otherwise set to [101]
2	6 to 7	Reserved	N	Y	Set to 0
3	0 to 7	Reserved	N	Y	Set to 0
4	0 to 1	[00] Not a reference [01] Grade 1 reference [10] Grade 2 reference [11] Undefined	N N N N	Y N N N	Set to 0
4	2 to 7	Reserved	N	Y	Set to 0
5	0 to 7	Reserved	N	Y	Set to 0
6 to 9	0 to 7	Alphanumeric channel origin data	S	Y	Passed unmodified
10 to 13	0 to 7	Alphanumeric channel destination data	S	Y	Passed unmodified
14 to 17	0 to 7	Local sample address code	S	Y	Passed unmodified
18 to 21	0 to 7	Time-of-day sample address code	S	Y	Passed unmodified
22	0 to 3	Reserved	S	Y	Passed unmodified
22	4	Bytes 0 to 5 reliability flag	S	Y	Passed unmodified
22	5	Bytes 6 to 13 reliability flag	S	Y	Passed unmodified
22	6	Bytes 14 to 17 reliability flag	S	Y	Passed unmodified
22	7	Bytes 17 to 21 reliability flag	S	Y	Passed unmodified
23	0 to 7	CRC	Y	Y	Calculated on output

V- and U-Bit

Table A-3. V- and U-Bit Data Descriptions

Item	RX	TX	Remarks
Validity (V) Bit	S	Y	Passed unmodified
User (U) Bit	S	Y	Passed unmodified

Miscellaneous Data

Table A-4. Miscellaneous Data Descriptions

Item	RX	TX
Audio Sampling Frequency (kHz)	32 to 108	48
Audio Sampling Word Length (bits)	16 to 24	User selectable

Appendix B

Communication and Control Troubleshooting Tips

Overview

Find the following troubleshooting information in this appendix:

- "General Troubleshooting Steps" on page 58
- "Software Communication and Control Issues" on page 59
- "Hardware Communication and Control Issues" on page 63
- "Contacting Customer Service" on page 63

General Troubleshooting Steps

Follow these steps in troubleshooting 6800**+** product problems:

1. Review the “Software Communication and Control Issues” on page 59 outlined in this chapter.
2. Search this product manual and other associated documentation for answers to your question.

   > Associated documentation for 6800**+** series products can generally be found in the product-specific manual that accompanies every module, in the *FR6802**+** Frame Installation and Operation Manual*, and in the *6800**+** Safety Instructions and Standards Manual*.

   Product documentation (including manuals, online help, application notes, erratas, product release notes, and more) can be found on our website, along with technical support information, training information, product downloads, and a product knowledge base.
3. Contact your Customer Service representative if, after following these initial steps, you cannot resolve the issue.

   To contact Customer Service, see “Contacting Customer Service” on page 63.

Software Communication and Control Issues

- "+ Pilot Lite Fails to Communicate with Installed Modules" on page 59
- "+ Pilot Lite Does Not Find All Modules in Frame" on page 60
- "+ Pilot Lite or CCS Software Application Not Responding" on page 61
- "+ Pilot Lite Cannot Control a Module Showing in the Control Window" on page 61
- "+ Pilot Lite Status Bar Reports "Not Ready"" on page 61
- "CCS Software Application or Remote Control Panel Does Not Communicate with Module" on page 62
- "Alarm Query Fails When a Device Reboots" on page 62

+ Pilot Lite Fails to Communicate with Installed Modules

Confirm that the following items are not the reason for the communication failure:

- Proper module slot has not been specified (**+** Pilot Lite is not communicating with the appropriate slot). See your *FR6802+ Frame Installation and Operation Manual* for more information on slot identification.
- COM port is used elsewhere (Check that the correct COM port is configured in **+** Pilot Lite and that another application is not using that COM port).
- Actual frame ID does not match with the two DIP switch settings in the back of the frame (**+** Pilot Lite is not communicating with the proper frame). See your *FR6802+ Frame Installation and Operation Manual* for more information on frame ID switch settings.
- Null modem cable is not being used. Between the PC running **+** Pilot Lite and the FR6802**+** frame, there should be a null RS-232 modem cable. At minimum, this requires that pins 2 and 3 are crossed and 5 to 5 for ground.
- ICE6800**+** module is installed in the frame (**+** Pilot Lite control is disabled if an ICE6800**+** module is installed in the frame; ICE6800**+** modules are used for CCS control).

- A legacy 6800 series product is in the frame. + Pilot Lite cannot communicate with legacy 6800 series products. They will not be discovered or controlled by + Pilot Lite, although they can be installed in the FR6802+ frame and work using card edge controls. The module must be from the 6800+ product family.
- Check that the back module does not have any bent pins, following this procedure:
  a. Unplug the front module.
  b. Unscrew and remove the back module.
  c. View the 20-pin spring connector at the bottom of the back module.(See Figure B-1.)

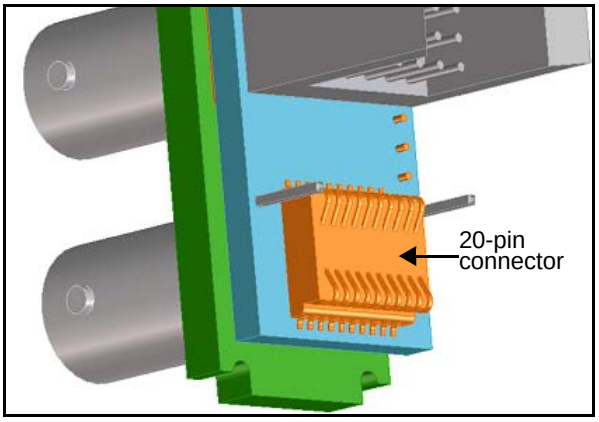

Figure B-1. Back Module to Front Module Connector

This connector should not have any bent or pressed pins. Even a slightly depressed or bent pin may cause genlock issues.

  d. If there are bent pins, carefully reposition them to their correct positions.

     If this is not possible, you can exchange the back module for a new one (order part number AVS6800+DR).

+ Pilot Lite Does Not Find All Modules in Frame

If a discovery is started too soon after frame power-up, + Pilot Lite will not find all the installed modules. Refresh + Pilot Lite (**File** > **Refresh**), and ensure that installed modules are fully powered-up first before discovery.

If a module is plugged into the frame after a discovery, + Pilot Lite does not automatically detect the module. Refresh + Pilot Lite (**File** > **Refresh**) to discover the newly installed module.

If a Legacy 6800 series product is in the frame, + Pilot Lite will not detect it. + Pilot Lite cannot communicate with legacy 6800 series products. They will not be discovered or controlled by + Pilot Lite although they can be installed in the FR6802+ frame and work using card edge controls. For + Pilot Lite to find a module, it must be from the 6800+ product family.

+ Pilot Lite or CCS Software Application Not Responding

+ Pilot Lite and CCS applications such as Navigator or Pilot cannot run on the same PC at the same time. Both applications can be installed, but only one can be opened at a time.

+ Pilot Lite Cannot Control a Module Showing in the Control Window

Consider these questions:

- Did you physically set the jumper for local control? If so, set this jumper to the REM position for remote control.
- Does the card name in the control window physically match the card type in the frame?
- Is the module properly seated in the frame? Check the positioning of the module in its slot in the frame.
- Does the Control window indicate the device is “ready”? The device may be powered off or disconnected from the network.

+ Pilot Lite Status Bar Reports “Not Ready”

+ Pilot Lite reports each device’s connection status in the status bar. If the connection status message reads “Not Ready,” check the following:

- Is the module properly seated in the frame? Check the position of the module in the frame.
- Is the frame connected to the network? Check the device’s network connection.

If the status bar still reports no status or “Not Ready” for the frame or device, try restarting + Pilot Lite.

CCS Software Application or Remote Control Panel Does Not Communicate with Module

CCS software applications (such as Pilot, CoPilot, and Navigator) and remote control panels require the purchase and installation of an ICE6800**+** module in an FR6802**+** frame in order to communicate remotely via Ethernet.

Alarm Query Fails When a Device Reboots

When you reboot a device connected to your PC, the alarm traffic hitting the network may cause an alarm query request to time out and fail. While the query does not automatically retry, it will post an “Alarm query failed” message to the **Diagnostics** window.

To clear an “Alarm query failed” message, right-click inside the **Diagnostics** window, and then select **Refresh** from the resulting context menu.

Hardware Communication and Control Issues

- "Frames Fail to Communicate with the PC after a Power Failure" on page 63
- "Module Does Not Seem to Work" on page 63

Frames Fail to Communicate with the PC after a Power Failure

You must exit the software and restart after the frame recovers from its power failure. To restore communications between the PC and the frames, ensure that the frames have three or more minutes to recover from the power failure before you exit the application and restart the PC.

Module Does Not Seem to Work

Although the following troubleshooting tips may seem obvious, please take the time to ensure the following:

- All appropriate rear connections are securely made
- The board is securely installed (with no bent pins)
- The frame is turned on

Contacting Customer Service

We are committed to providing round-the-clock, 24-hour service to our customers around the world. Visit our website for information on how to contact the Customer Service team in your geographical region.

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